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# United States Patent [19]

**Okubo**

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[45] **Date of Patent: Apr. 8, 1997**

[54] **CONSTRUCTION MEMBER**

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[73] Assignee: **Monc Co., Ltd.**, Osaka, Japan

[21] Appl. No.: **492,447**

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[30] **Foreign Application Priority Data**

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Dec. 21, 1994 [JP] Japan ..... 6-336563

[51] **Int. Cl.**[6] ..... **G09F 19/00**
[52] **U.S. Cl.** ..... **40/545**; 40/564; 362/147
[58] **Field of Search** ..... 40/545, 541, 564; 362/147, 806, 812

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*Assistant Examiner*—Cassandra Davis
*Attorney, Agent, or Firm*—Armstrong, Westerman, Hattori, McLeland & Naughton

[57] **ABSTRACT**

A construction member includes a square frame. The frame is formed of a front frame and a back frame. A plate is secured to the inner side of an edge of the front frame. A glass tube constituting a visually perceptible part in the form of a letter or a pattern is secured to the back surface of the plate by an adhesive consisting of thermosetting resin having self-extinguish property. An electrode tube is formed at one end of the glass tube and the other end thereof. The glass tube encloses inert gas such as neon gas. A printed layer is formed on one main surface of the plate as another visually perceptible part by silk printing method or the like. The frame accommodates a reflective panel formed of stainless steel plate by spacing the reflective panel at a determined interval from the plate. A transformer for illuminating the glass tube is mounted on the back surface of the reflective panel.

**12 Claims, 9 Drawing Sheets**

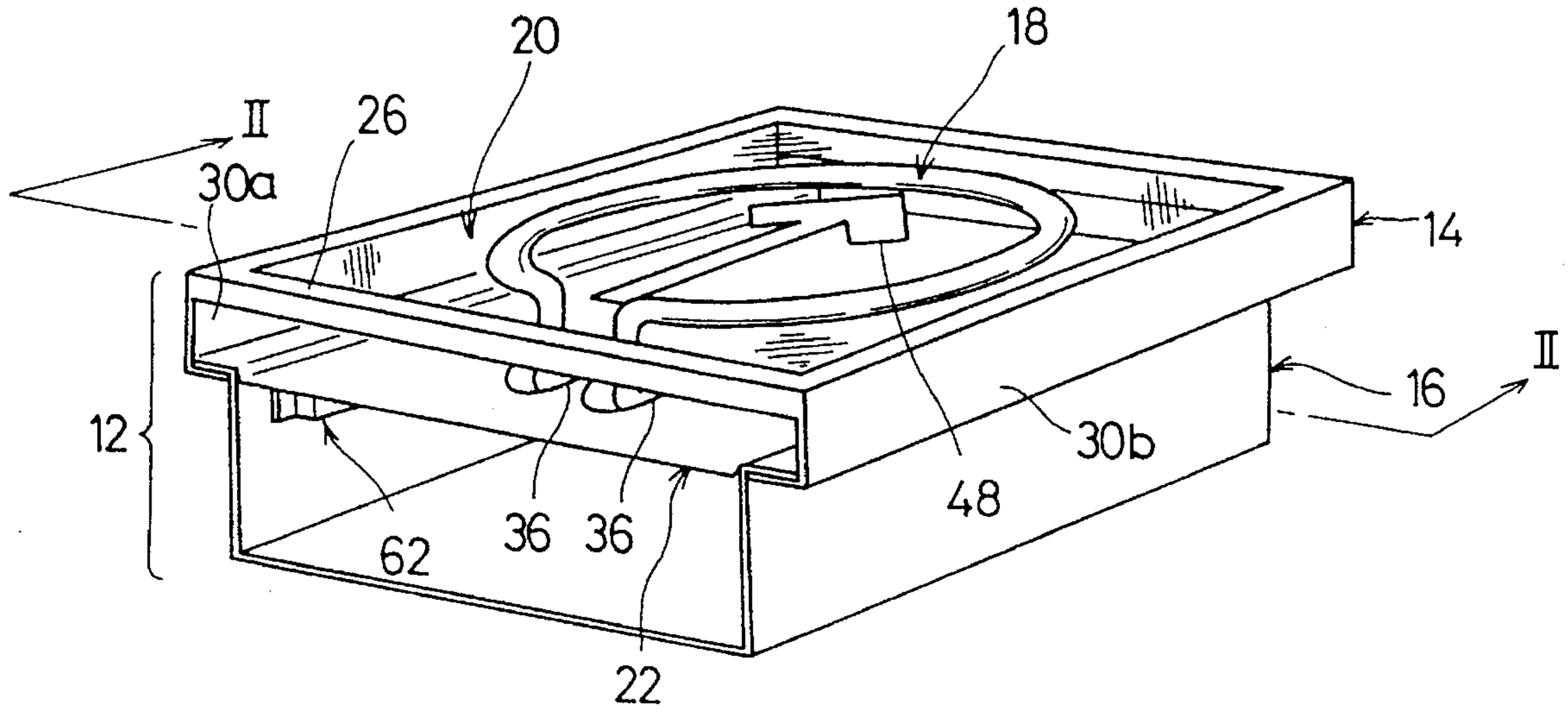
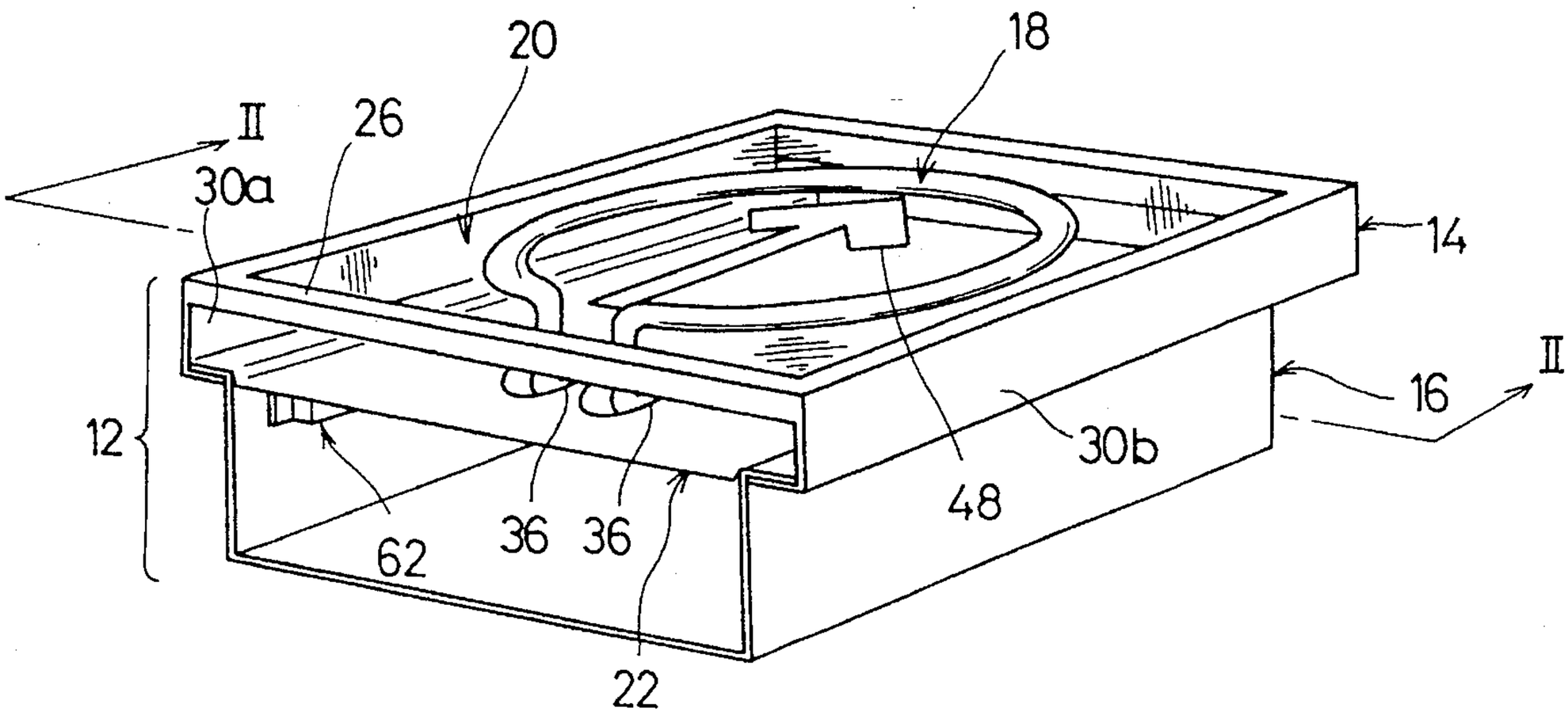


FIG. 1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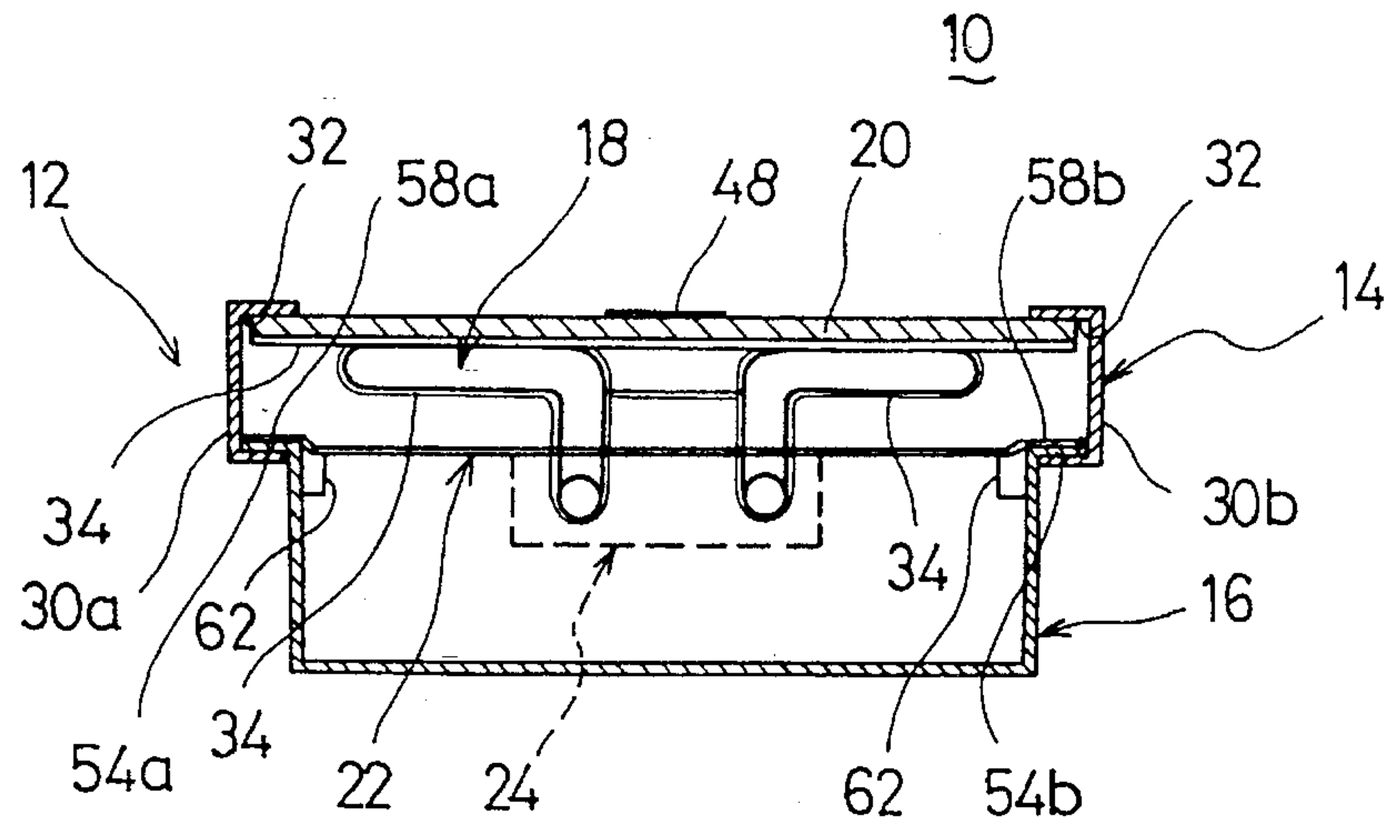
30a
14
12
16
II
30b
48
62
36
36
22

FIG. 2


10
12
32
58a
18
48
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54a
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22
24
62
54b

FIG. 3

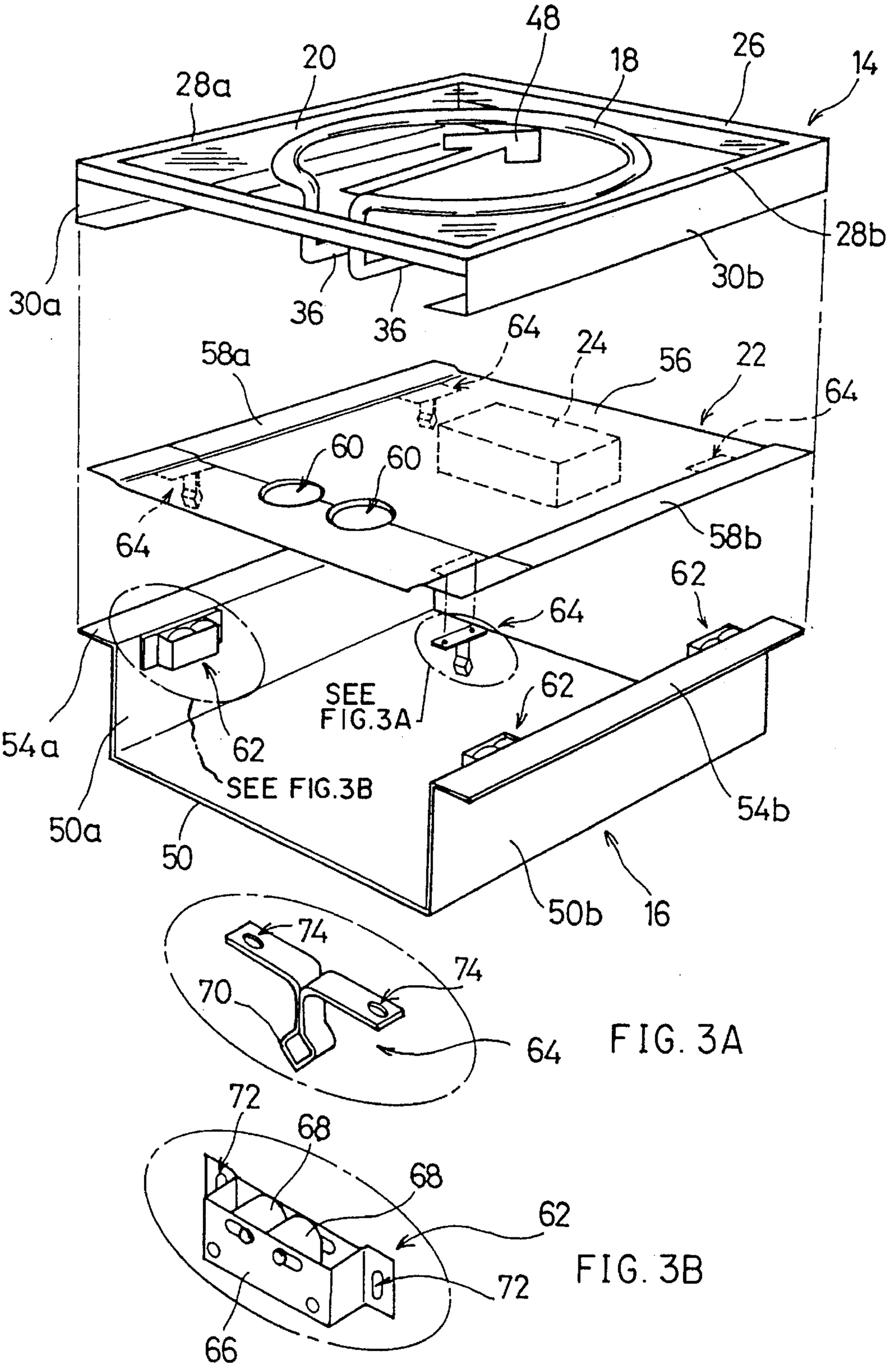



FIG. 3A

FIG. 3B

FIG.4

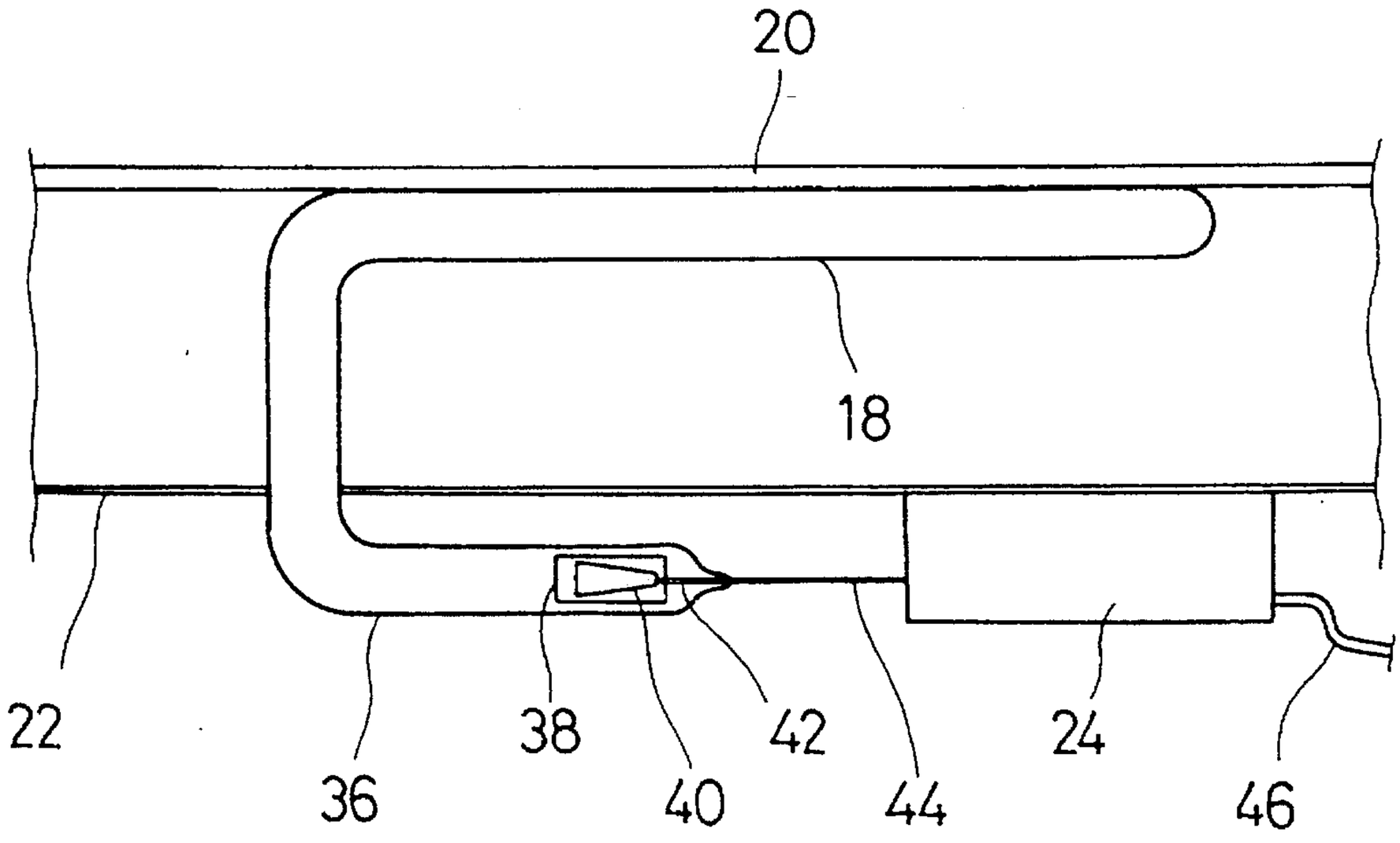


FIG.5(A)

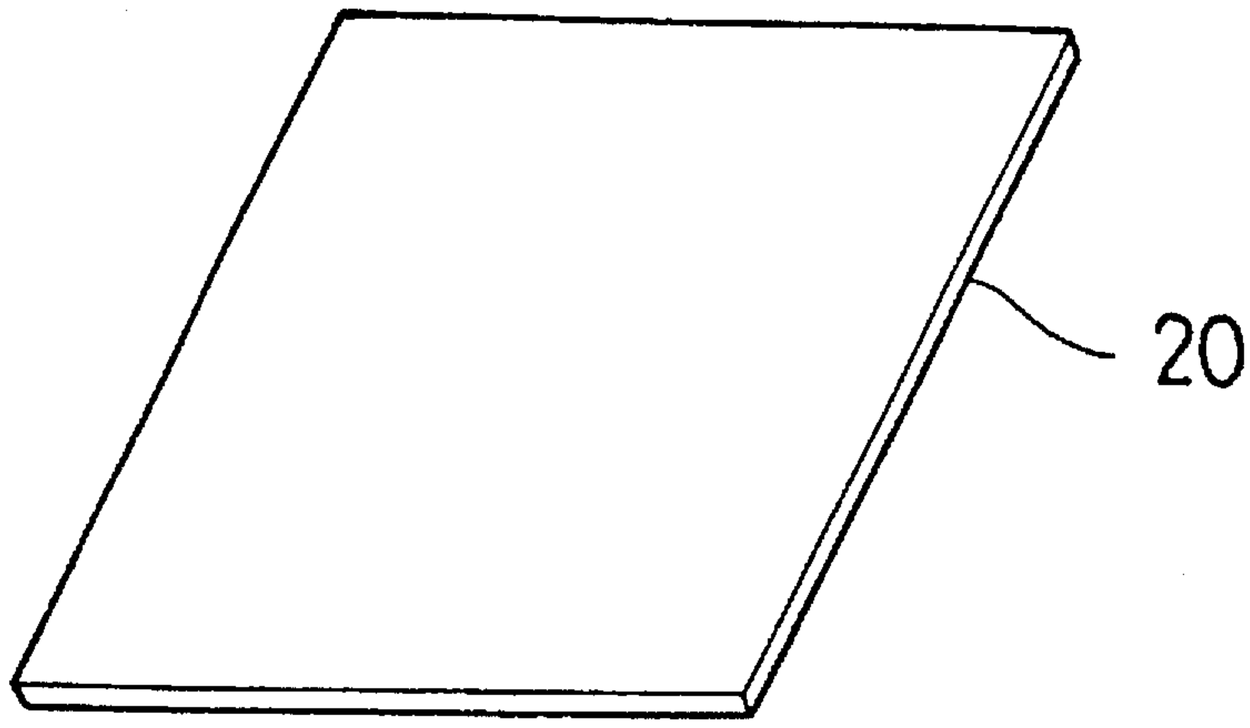



FIG.5(B)

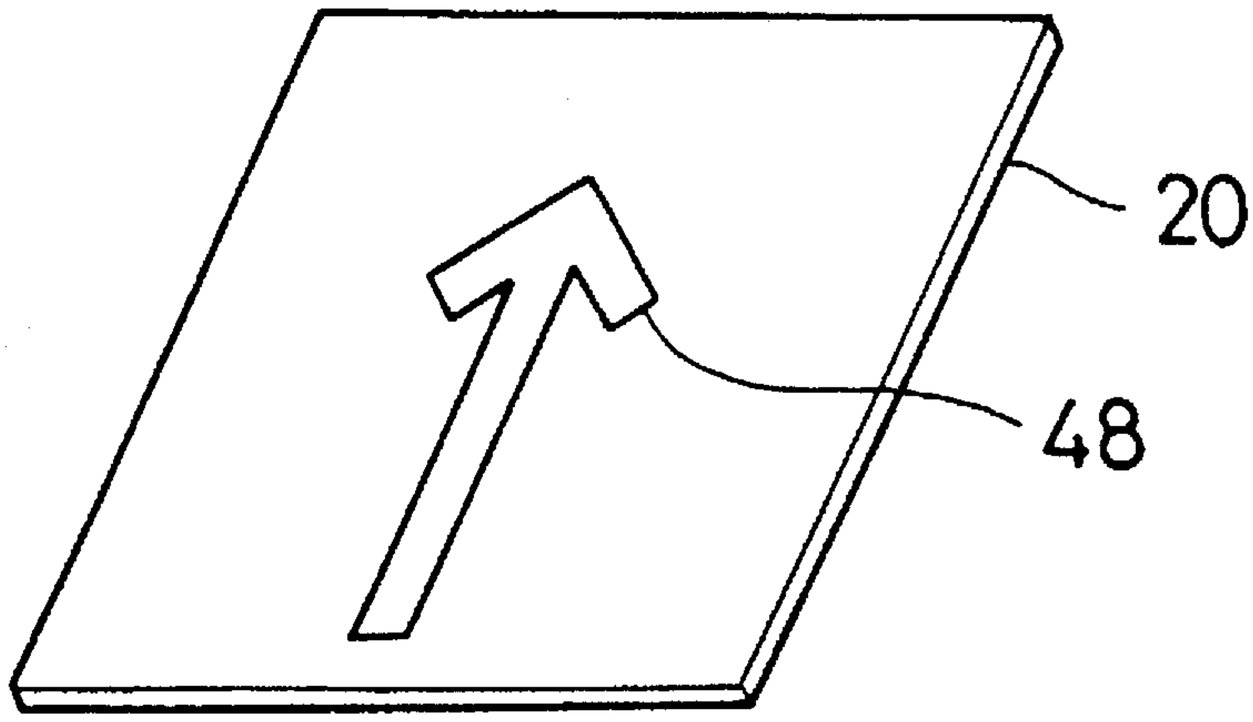


FIG.6(A)

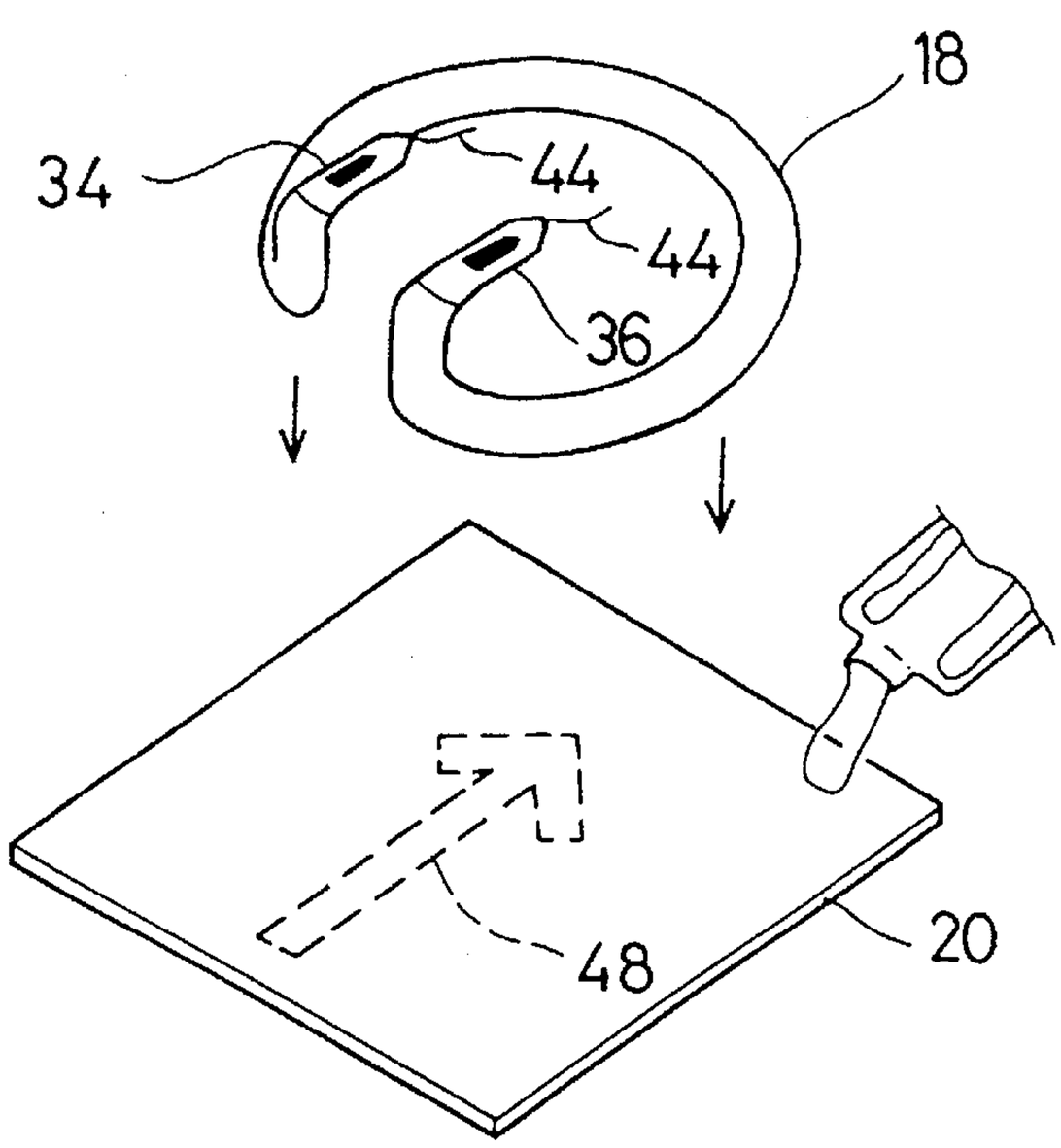



FIG.6(B)

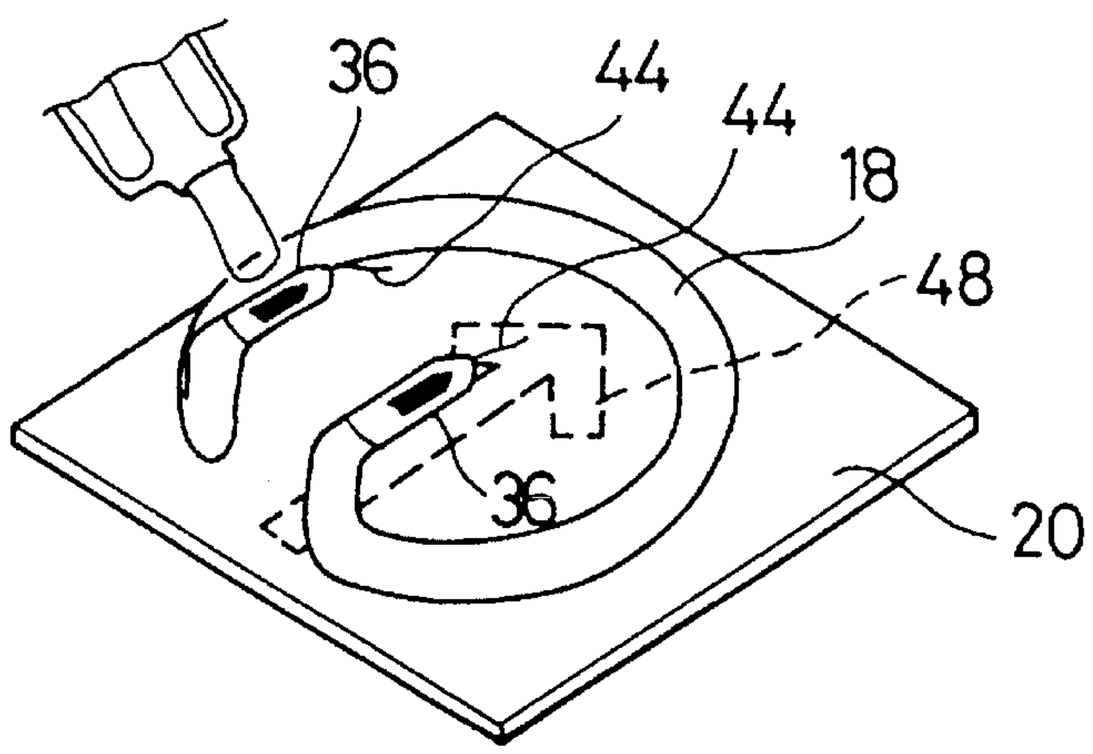
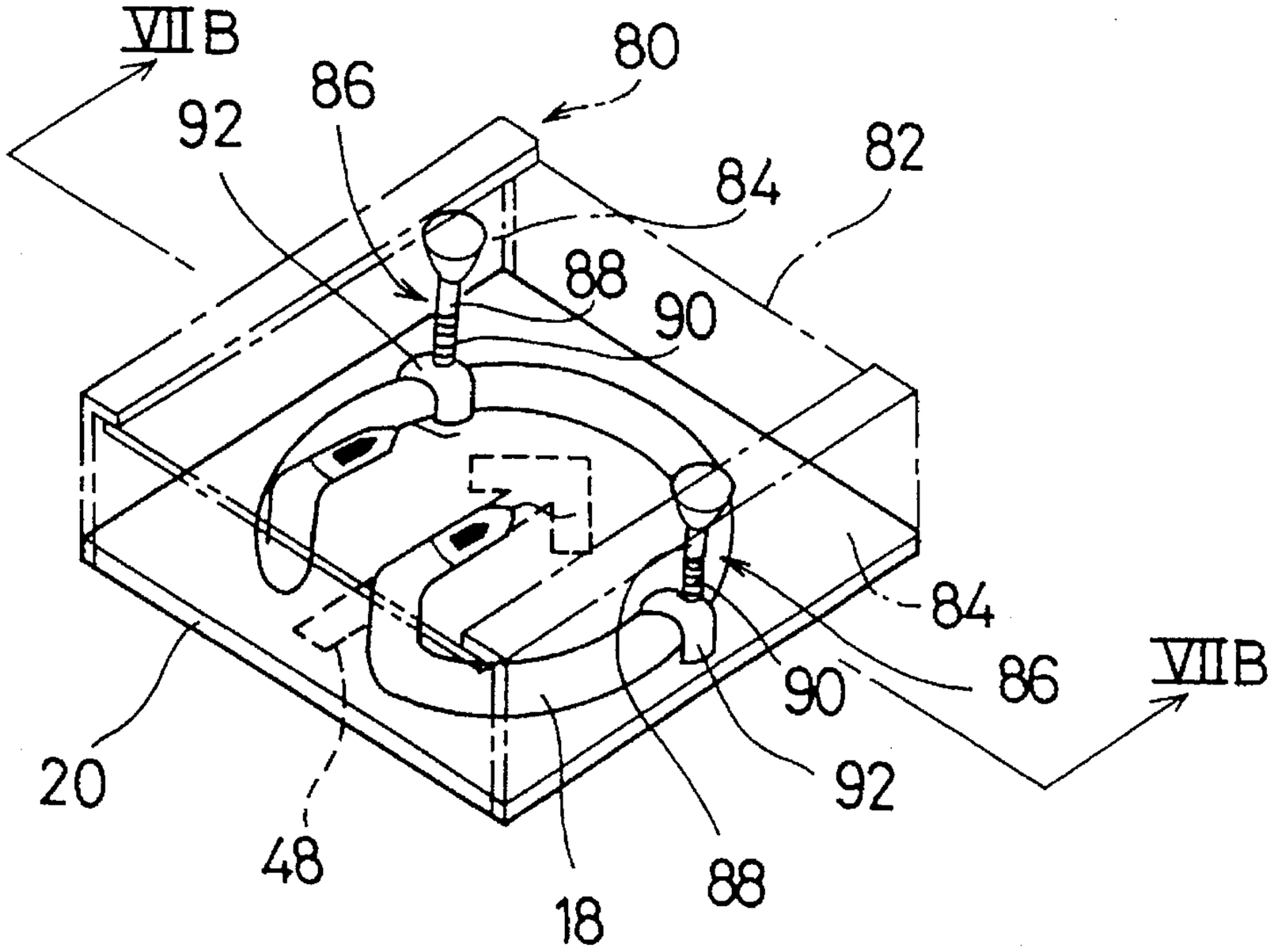


FIG.7(A)


VII B
80
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VII B
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88

FIG.7(B)

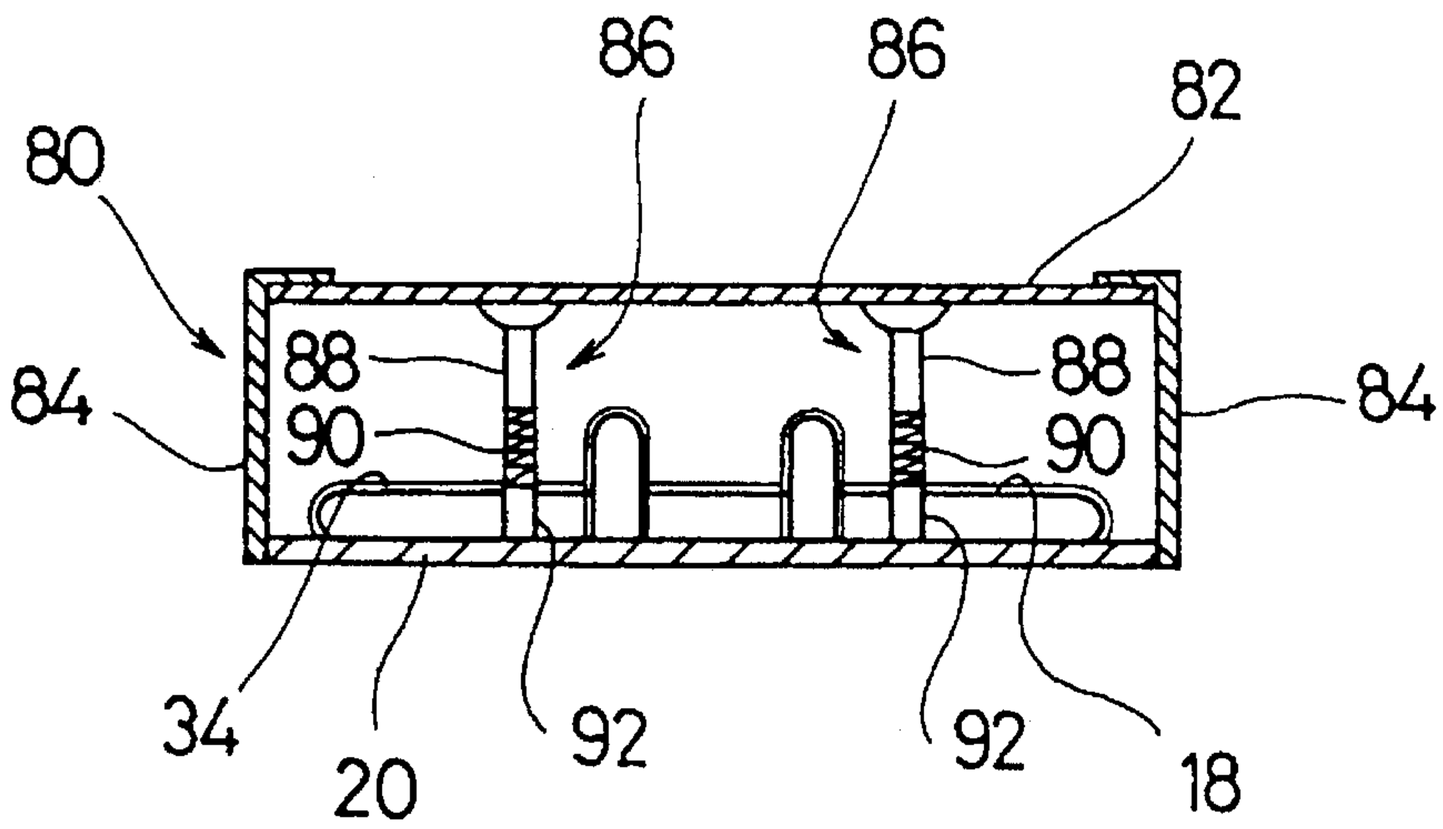
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FIG.8

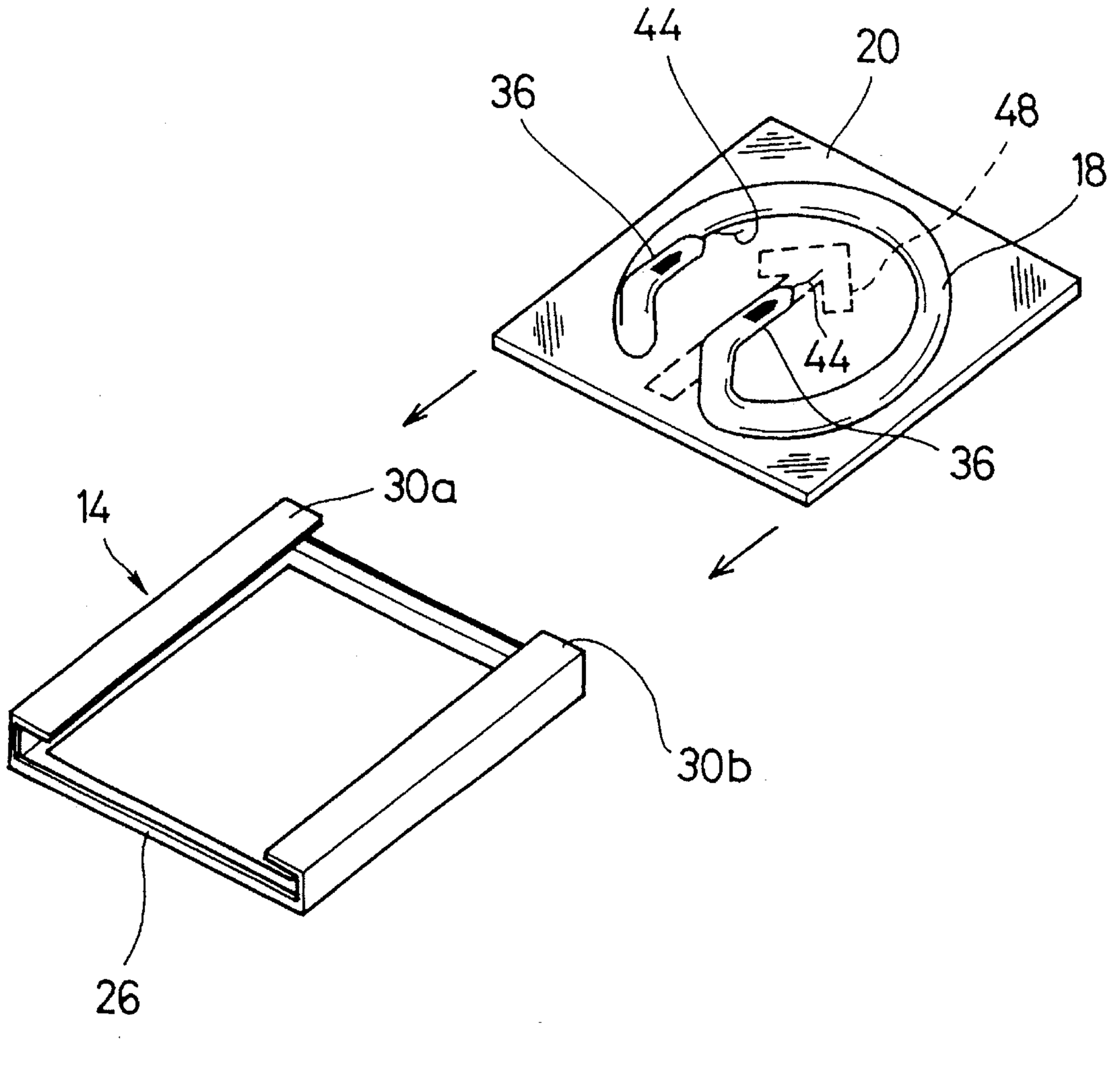


FIG.9(A)

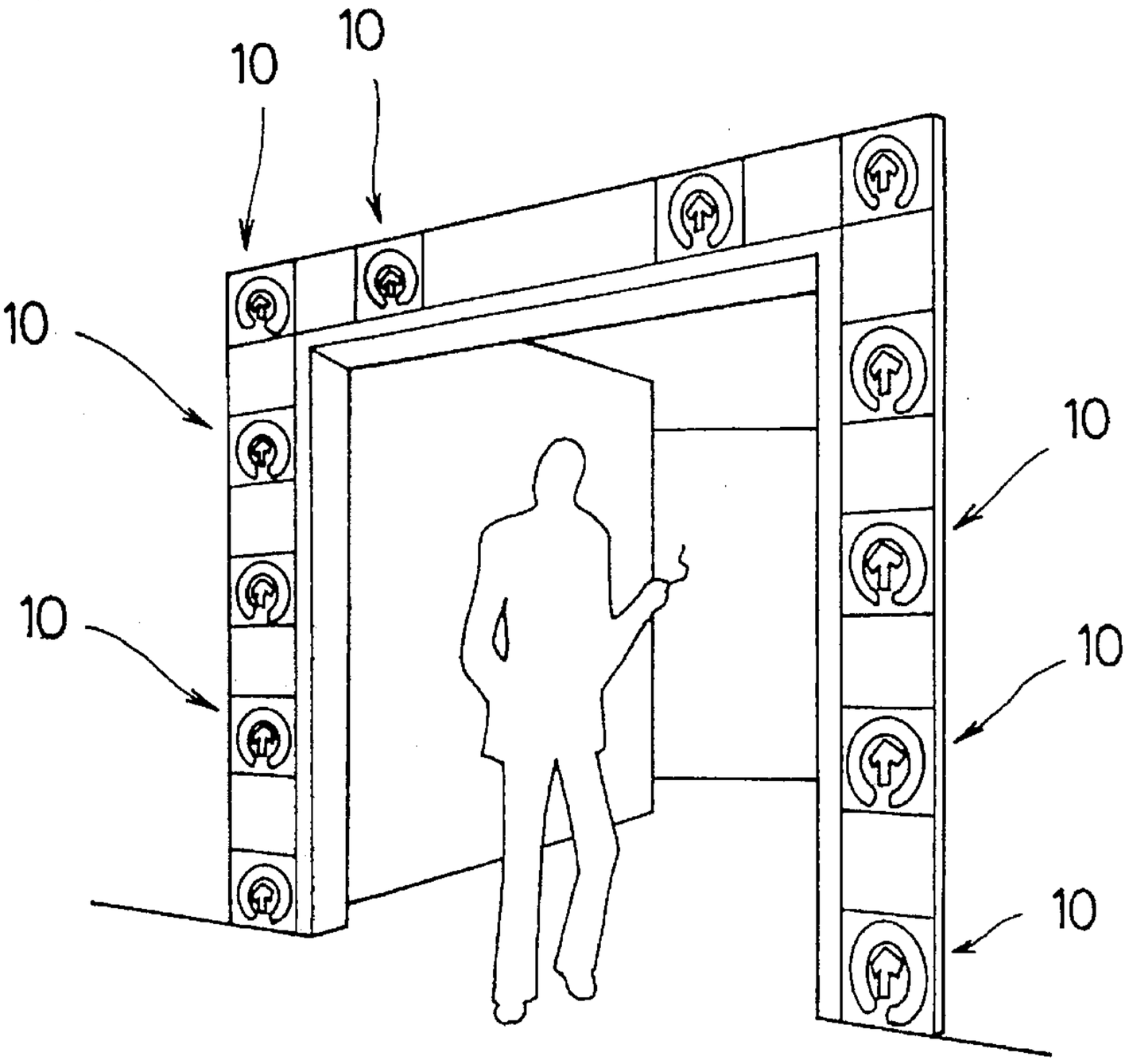
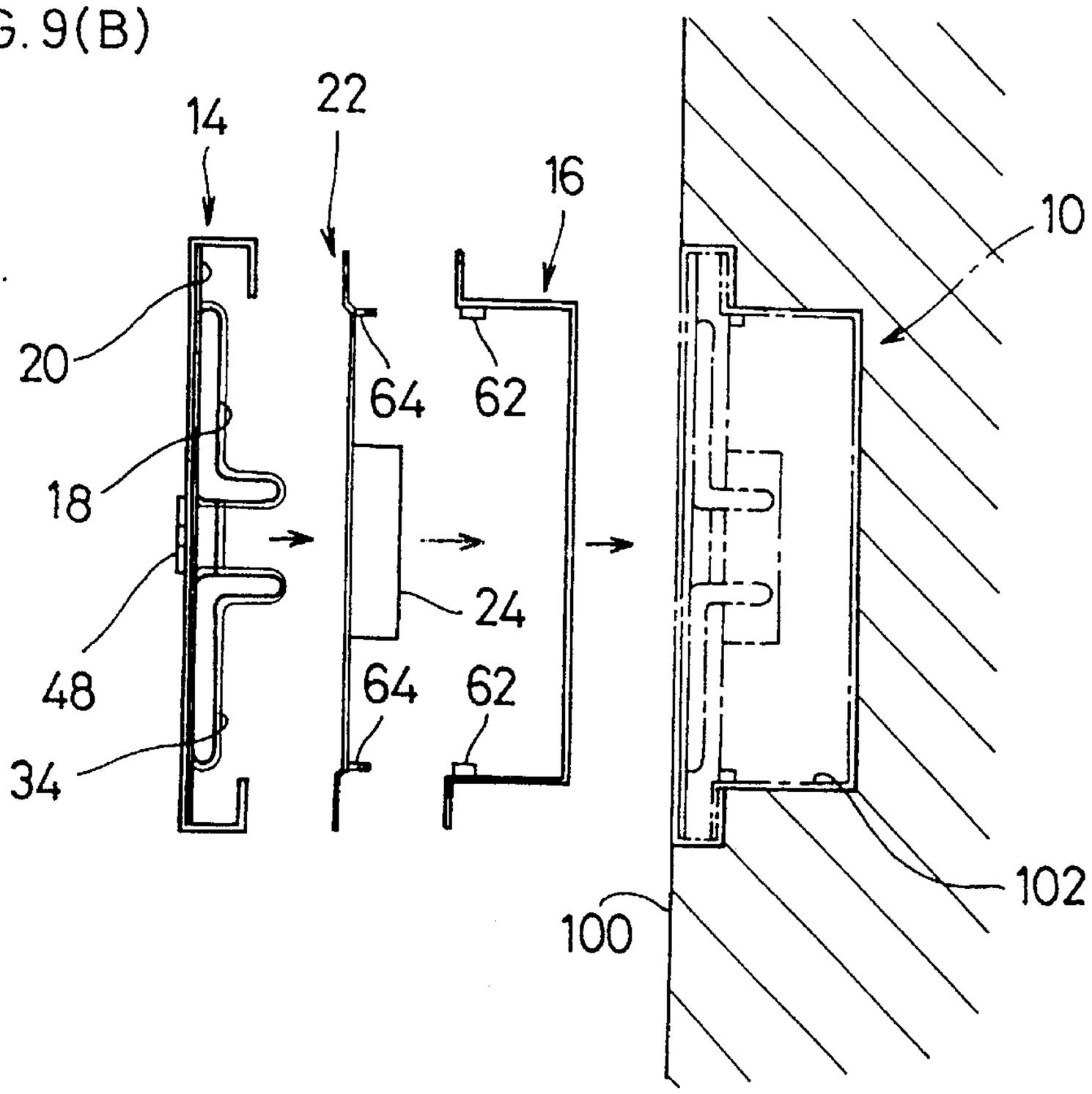



FIG.9(B)



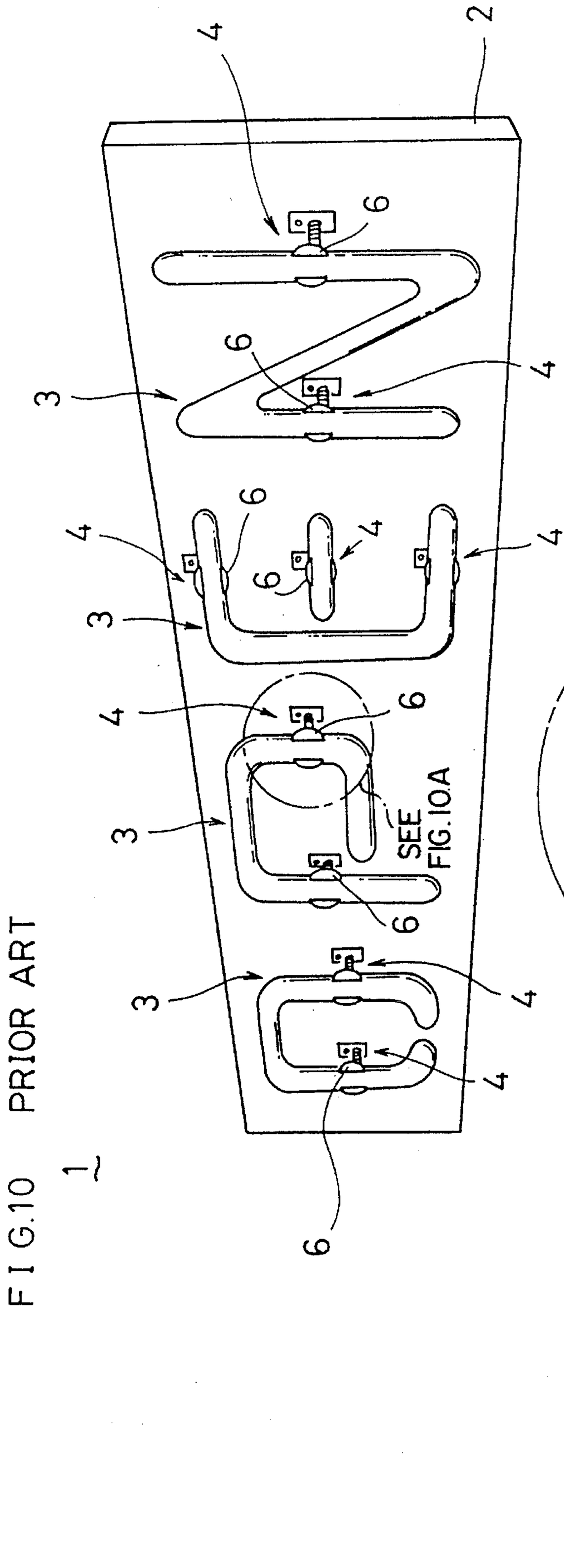



FIG.10
PRIOR ART

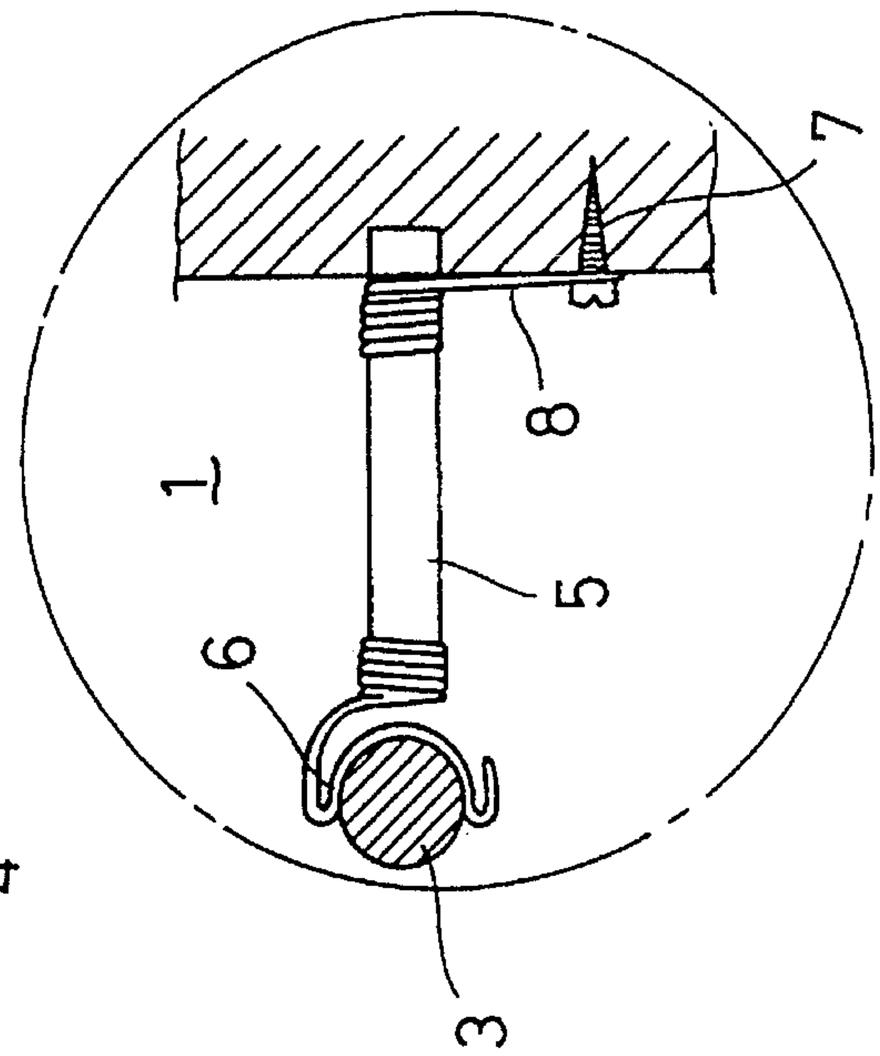



FIG. 10A
PRIOR ART

# CONSTRUCTION MEMBER

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a construction member, and more particularly, to a construction member used, for example, in floors, walls, ceilings, and the like, as an interior finish members and an exterior wall finish members for various kinds of buildings in, for example, commercial zones, leisure zones, resort facilities or the like.

2. Description of the Prior Art

Hitherto, construction members serving as an interior finish members and an exterior wall finish members included, among other things, woody boards, stone materials, gypsum boards, artificial stones, bricks, ceramic tiles, and plastic tiles and the like. Such conventional construction members, however, had their surfaces generally flat, and were lacking in general decorativeness. Only a few thereof were aesthetically variable.

The conventional construction members, in general therefore, could not meet the diverse needs of users as materials for buildings in, for example, city zones and commercial zones; or those in play zones, such as theme parks, waterfront constructions, and various resort facilities; or as formative materials for enhancing visual effects for various events; and interior finishes.

In the prior art which makes the background of the present invention, there is a neon tube used, for example, in signboards or neon sign, and the like. In a conventional neon tube itself is constituted as a visually perceptible part for indicating a letter, a symbol or a pattern by merely bending the neon tube itself. FIG. **10** is a perspective view showing a conventional neon sign which forms the background of the present invention.

A neon sign **1** includes a rectangular supporting plate **2** made of metal. A neon tube **3** forms the indication of a letter "OPEN" on the surface of the supporting plate **2**. The neon tube **3** is fixed to the supporting plate **2** by means of a supporter **4**. The supporter **4** includes a column-shaped supporting leg **5**. An approximately U-shaped holding member **6** made of an elastic metal such as spring steels is formed on one end of the supporting leg **5** in the axial direction thereof. The holding member **6** is energized so that it is closed in the radial direction thereof. An mounting strip **8** having a mounting screw **7** is formed on the other end of the supporting leg **5** in the axial direction thereof. The supporter **4** is installed on the supporting plate **2** appropriately by means of the mounting screw **7**. The neon tube **3** is held on the supporting plate **2** by the holding portion **6** so as to prevent the neon tube **3** from being dropped.

In the conventional neon sign shown in FIG. **10**, the neon tube **3** constituting the visually perceptible part is supported partly by the holding portion **6** of the supporter **4**. Thus, the neon sign is unstable. Further, because the neon tube **3** itself is exposed to the outside, there is a possibility that it is damaged by shock applied thereto from outside.

## SUMMARY OF THE INVENTION

It is, therefore, a primary object of the present invention to provide a construction member which is capable of supporting and protecting a visually perceptible part and serves as a new formative material, that is rich in decorativeness, as well as in producing visual effect.



The present invention is directed to a construction member comprising a frame; a glass tube constituting a visually perceptible part in the form of a letter, a symbol or a pattern and filling inert gas; and means for illuminating the glass tube. The glass tube is supported with a surface of the plate by the glass tube being secured to one main surface of the plate.

Preferably, the plate is made of a glass material and secured to one main surface of the plate by means of a material consisting of thermosetting resin, such as thermosetting adhesive.

The construction member may be formed a printed layer which constitutes another visually perceptible part in the form of, for example, a letter, a symbol or a pattern, or the like, on the other main surface of the plate. The construction member may be disposed a reflective panel for reflecting light transmitted from the glass tube inside the frame at a spaced distance from the plate.

A protection layer consisting of thermosetting resin may be formed entirely on one main surface of the plate in such a manner that the protection layer covers the glass tube.

The construction member may be formed the frame which constitutes a front frame provided on the side of the other main surface of the plate; and a back frame which is disposed in the side of one main surface of the plate and removably installed within the reflective panel by means of engaging means.

The glass tube which constitutes the visually perceptible part in the form of a letter, a symbol or a pattern is secured to one main surface of the plate. That is, because the glass tube is supported on one main surface of the plate, the glass tube contacts it in a larger area, compared with the conventional construction comprising the supporter which supports the glass tube such as a neon tube. That is, the glass tube is supported on the plate by more supporting points, compared with the conventional construction. Therefore, the glass tube can be supported stably.

The glass tube which constitutes the visually perceptible part in the form of a letter, a symbol or a pattern is illuminated by means for illuminating. That is, the visually perceptible part is created by means of an illuminating means and a letter, a symbol or a pattern, or the like, in the visually perceptible part is illuminated by means of the emitting means.

The printed layer formed on the other main surface of the plate constitutes another visually perceptible part in the form of a letter, symbol or pattern on the plate. The reflective panel disposed within the frame reflects thereon the letter, symbol or pattern of the visually perceptible part illuminated by means of the emitting means.

The protection layer consisting of thermosetting resin formed on the entirety of one main surface of the plate protects the entire glass tube.

The engaging means removably engages the reflective panel with the back frame.

According to the present invention, a novel construction member which is capable of supporting and protecting a visually perceptible part is obtainable, and besides a novel construction member as a new formative material with good decorativeness and excellent in producing visual effects is obtainable. That is, because the glass tube which constitutes the visually perceptible part in the form of a letter, a symbol or a pattern is secured to one main surface of the plate so as to support the glass tube stably on the plate. Therefore, the glass tube is resistant to external shocks or vibrations and is

damaged in a small degree in transportation or an installing operation. Further, the structure of the construction member eliminates the need for the provision of the glass tube-supporter. Thus, the glass tube can be easily handled.

Furthermore, because the glass tube is illuminated by the emitting means, the glass tube is able to form a visually perceptible part in the form of a letter, a symbol or a pattern, or the like, with good decorativeness.

Further, because the entire glass tube is protected by the protection layer, the visually perceptible part is very durable.

In addition, the printed layer is formed as another visually perceptible part on the other main surface of the plate. Thus, when the glass tube is illuminated, the printed layer is dark, whereas when the glass tube is not illuminated, the printed layer can be visualized clearly. Accordingly, the formative effect of the construction member can be enhanced greatly owing to the synergetic effects produced by the contrast between the illumination of the glass tube and the visually perceptible part in the form of the printed layer.

Moreover, an image of the glass tube illuminated by the emitting means is reflected on the front surface of the reflective panel provided inside the frame. Consequently, the visually perceptible part looks deep and extensive.

That is to say, the visually perceptible part is created by means of an illuminating means and a letter, symbol, pattern, or the like, in the visually perceptible part is illuminated by means of the emitting means and is reflected on the surface of the reflective panel.

Hence, with this kind of construction member a three-dimensional image, rich in the sense of depth, can be produced through overlapping of the visually perceptible part.

Further, the frame is constituted of the front frame and the back frame on which the reflective panel can be removably installed by means of the engaging means. Therefore, the construction member can be easily installed, for example, in floors, walls, ceilings, and the like. In this case, first, the back frame is mounted on a desired position. Then, the reflective panel is mounted on the back frame with a single operation by means of the engaging means. The front frame is then installed on the back frame.

The above and other objects, features, aspects, and advantages of the present invention will become more apparent from the following detailed description made with reference to the drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view showing an embodiment of the present invention.

FIG. **2** is a sectional view taken on line II—II in FIG. **1**.

FIG. **3** is an exploded perspective view of the construction member shown in FIGS. **1** and **2**.

FIG. **4** is a side view showing an electrode tube and its periphery.

FIGS. **5**(A) and **5**(B) are perspective views showing the process for manufacturing the construction member shown in FIGS. **1**, **2** and **3**, in which FIG. **5**(A) is a perspective view showing a prepared plate; and FIG. **5**(B) is a perspective view showing a state in which printing has been made on a surface of the plate.

FIGS. **6**(A) and **6**(B) are perspective views showing the process for manufacturing the construction member shown in FIGS. **1**, **2** and **3**, in which FIG. **6**(A) is a perspective view showing a state in which an electrode tube having a glass tube mounted thereon is installed on the back surface of the plate; and FIG. **6**(B) is a perspective view showing a state in which adhesive is applied to the entire back surface of the plate from above the glass tube.

FIGS. **7**(A) and **7**(B) are perspective views showing the process for manufacturing the construction member shown in FIGS. **1**, **2** and **3**, in which FIG. **7**(A) is a perspective view showing a state in which the glass tube is pressed against the back surface of the plate by using a pressing case so as to secure the glass tube to the plate; and FIG. **7**(B) is a sectional view taken on line VIIB—VIIB of FIG. **7**(A).

FIG. **8** is a perspective view showing a state in which the plate to which the glass tube has been fixed is inserted into U-shaped portions of a front frame.

FIG. **9**(A) is a perspective view showing an example of the use of the construction member shown in FIGS. **1**, **2** and **3**; and FIG. **9**(B) is a side view showing the process of mounting the construction member on a wall.

FIG. **10** is a perspective view showing a conventional neon sign which forms the background of the present invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** is a perspective view showing an embodiment of the present invention. FIG. **2** is a sectional view taken on line II—II of FIG. **1**. FIG. **3** is an exploded perspective view showing of the construction member shown in FIGS. **1** and **2**.

A construction member **10** includes a frame **12**. The frame **12** is formed of a front frame **14** and a back frame **16**. Disposed in the frame **12** are a glass tube **18** constituting a visually perceptible part; a plate **20** supporting the glass tube **18** on its one main surface; a reflective panel **22** removably attached on the back frame **16** and spaced at a distance from the glass tube **18**; a transformer **24** attached on the reflective panel **22**, for applying a voltage to the glass tube **18**.

That is, the front frame **14** includes a base frame **26**, the plan configuration of which is square and the sectional configuration of which is "equal angle steel"-shaped. Plate-shaped side strips **30***a* and **30***b* both L-shaped in section extend from a side **28***a* of the base frame **26** and from a side **28***b* opposed to the side **28***a*, respectively. The base frame **26**, the side strip **30***a*, and the side strip **30***b* all made of a metallic material such as stainless steel are formed integrally with each other.

On the inside of the front frame **14**, the glass tube **18** which constitutes the visually perceptible part in the form of a letter, a symbol, a design, a pattern, or the like are disposed. The glass tube **18** is formed of tempered glass or the like. The tempered glass is bent into a desired configuration by bending processing to form the glass tube **18**. An inert gas such as neon, helium or argon is filled in the glass tube **18**. In this embodiment, the tempered glass is bent into the O-shaped glass tube **18**, and neon gas is filled in the glass tube **18**.

The glass tube **18** is supported by the transparent or semitransparent plate **20** made of glass such as borosilicate glass, tempered glass or the like. The plate **20** having a square configuration is secured to the inner side of an edge **32** of the front frame **14**. The plate **20** is secured to the front frame **14** with adhesive consisting of thermosetting resin such as epoxy resin. The glass tube **18** is secured to the back

surface of the plate **20** with adhesive consisting of thermosetting resin such as epoxy resin.

In this embodiment, adhesive consisting of thermosetting resin such as epoxy resin having self-extinguish property is applied to the periphery of the glass tube **18** and to the entire back surface of the plate **20**. That is, a resin layer **34** consisting of the thermosetting resin having self-extinguish is formed on the entire back surface of the plate **20** in such a manner that the glass tube **18** is covered with the thermosetting resin. The resin layer **34** allows the glass tube **18** to be secured to the back surface of the plate **20** and serves as a protection layer for protecting the glass tube **18**.

An electrode tubes **36**, **36** having a cylindrical configuration is formed of glass or the like are formed on one end portion and the other end portion of the glass tube **18**. Referring to FIG. **4**, A holding tube **38** having an approximately cylindrical configuration is disposed inside each electrode tube **36**. An electrode **40** having a cylindrical and approximately conic is disposed in the holding tube **38**. The electrode **40** is formed of metal such as iron or copper. One end, of the electrode **40**, in the axial direction thereof is connected with a lead-in wire **42**. The lead-in wire **42** is connected with a insulating coating wire **44** connected with the transformer **24**. The transformer **24** is connected with an external power source (not shown) with a cord **46**, thus a voltage is applied between the electrodes **40** and **40** of the electrode tubes **36** and **36**. As a result, discharge phenomenon takes inside the glass tube **18** as a discharge pass and consequently, the glass tube **18** illuminates.

In this embodiment, the transformer **24** has a low voltage and is hence safe, unlike a transformer having a high voltage for use in a conventional signboard or neon sign.

A printed layer **48** constituting another visually perceptible part in the form of a letter, a symbol, a design or a pattern is formed on the front surface of the plate **20** by screen printing method or offset printing method. In this embodiment, the printed layer **48** is colored and arrow-shaped.

The back frame **16** is mounted on the front frame **14**. The back frame **16** includes a U-shaped back plate **50**. Rectangular projection strips **54***a* and **54***b* extend from short-side portions **50***a* and **50***b* of the back plate **50**, respectively. The projection strips **54***a* and **54***b* are projected outward from the short-side portions **50***a* and **50***b* of the back plate **50**, respectively. The back plate **50**, the short-side portions **50***a* and **50***b*, and the projection strips **54***a* and **54***b* all made of a metallic material such as stainless steel are formed integrally with each other.

The reflective panel **22** is disposed inside the frame **12** by spacing it at a predetermined interval from the back surface of the plate **20**. The reflective panel **22** is for reflecting light transmitted from the glass tube **18**, when the glass tube **18** is illuminated.

The reflective panel **22** includes a square reflective portion **56** made of metal such as stainless steel. Mounting strips **58***a* and **58***b* having a belt-like configuration are formed on both sides in the widthwise direction of the reflective portion **56**. The reflective portion **56** and the mounting strips **58***a*, **58***b* are formed integrally with each other. Two circular through-holes **60** and **60** are formed on main surface of the reflective portion **56**. In installing the reflective panel **22** inside the frame **12**, one end portion and the other end portion of the glass tube **18** and the electrode tubes **36** and **36** are inserted through the through-holes **60** and **60**. The transformer **24** is mounted on the back surface of the reflective panel **22**. It is preferable that the front surface of the reflective portion **56** is polished to mirror-like surface finish.

The reflective panel **22** is removably installed on the back frame **16** by an engaging means. More specifically, four receiving members **62** serving as one engaging means are mounted on the back frame **16**, and insertion members **64** serving as the other engaging means and removably engaging the receiving members **62** are mounted on the reflective panel **22**. In this case, two receiving members **62** spaced at a predetermined interval are mounted on the short-side portions **52***a* and **52***b* of the back frame **16**, respectively in the lengthwise direction thereof. In correspondence to the positions of the receiving members **62**, two insertion members **64** spaced at a predetermined interval are mounted on the mounting strips **58***a* and **58***b* of the reflective panel **22**, respectively in the lengthwise direction thereof.

Referring to FIG. **3**, each receiving member **62** includes an approximately U-shaped mounting metal fixture **66** made of steel and serving as an accommodating frame. Each mounting metal fixture **66** disposes two rollers **68** and **68** made of nylon resin or the like and positioned in close proximity to each other. Each receiving member **62** is fixed to the back frame **16** by a fixing means such as screws via holes **72** formed on the mounting metal fixture **66**.

A projection **70** of each insertion member **64** made of steel and approximately T-shaped is removably inserted between the rollers **68** and **68** of each receiving member **62**. Each insertion member **64** is secured to the reflective panel **22** by means of screws or the like via mounting holes **74**.

Thus, the reflective panel **22** can be removably installed on the back frame **16** with relative ease.

In this embodiment, the reflective panel **22** is made of stainless steel but may be made of metals other than stainless steel or of a semi-transparent mirror. Further, the reflective panel **22** may be formed by attaching a reflective sheet to one main surface of a square partitioning plate made of metal or synthetic resin. In this case, the reflective sheet is made of, for example, an aluminum foil or a resin film reflecting light such as polyethylene, polypropylene or the like.

The method for manufacturing the construction member **10** shown in FIGS. **1**, **2** and **3** is described below with reference to FIGS. **2**, **3**, **5**, **6**, **7** and **8**.

First, a transparent or semitransparent plate made of glass such as boro-silicate glass or tempered glass is prepared. Then, the plate is cut to a predetermined configuration and size to form the plate **20**, as shown in FIG. **5**(A).

Then, as shown in FIG. **5**(B), the printed layer **48** which shows a colored and arrow-shaped pattern is formed on the surface of the plate **20** by silk screen printing method or offset printing method.

The glass tube **18** made of tempered glass bent in the configuration of a letter "O" is prepared. The electrode tubes **36** and **36** are installed on one end the other end of the glass tube **18**, and then, inert gas such as neon, helium or argon is filled in the glass tube **18**. As shown in FIG. **6**(A), an adhesive consisting of thermosetting resin such as epoxy resin is applied to the entire back surface of the plate **20**.

Thereafter, the glass tube **18** is mounted on the back surface of the plate **20**. Then, the adhesive consisting of epoxy resin is uniformly applied to the periphery of the glass tube **18** and the back surface of the plate **20** to form the resin layer **34** on the entire back surface of the plate **20** in such a manner that the glass tube **18** is covered with the adhesive, as shown in FIG. **2**.

As shown in FIGS. 7(A) and 7(B), the glass tube **18** temporarily attached to the back surface of the plate **20** is pressed against the plate **20** by a pressing case **80**. As a result, the glass tube **18** is firmly fixed to the plate **20**. The pressing case **80** includes a square pressing plate **82**. Both sides of the pressing plate **82** are supported by a plurality of L-shaped side legs **84**. A plurality of pressing legs **86** is mounted on the inner surface of the pressing plate **82**. Each pressing leg **86** includes a bar-shaped portion **88**. A pressing portion **92** approximately semicircular in section is formed on the leading end of the bar-shaped portion **88**. The pressing portion **92** is energized by an energying member **90** such as a spring in the axial direction of the bar-shaped portion **88**.

That is, the glass tube **18** temporarily attached to the back surface of the plate **20** is uniformly pressed against the plate **20** by the pressing portion **92** of each pressing leg **86**, and then, left at the room temperature or at a low temperature for a predetermined period of time. In this embodiment, the glass tube **18** is left for 10–12 hours at the room temperature. Then, the pressing plate **82**, the side legs **84**, and the pressing legs **86** are removed. In this manner, the glass tube **18** is firmly secured to the back surface of the plate **20**.

Thereafter, as shown in FIG. **8**, the plate **20** to which the glass tube **18** has been fixed is inserted into the inner side of the edge **32** of the front frame **14**, with the glass tube **18** located below the plate **20**. As shown in FIG. **2**, both sides of the plate **20** are fixed to the inner side of the edge **32** of the front frame **14**, for example, by means of adhesive consisting of epoxy resin.

The reflective panel **22** is installed on the back frame **16** by means of the engaging means **62** and **64**. The projection strips **54***a* and **54***b* of the back frame **16** to which the reflective panel **22** has been installed are secured to the shorter sides of the side strips **30***a* and **30***b* of the front frame **14** by means of the adhesive agent consisting of epoxy resin. In this manner, the construction member **10** is manufactured.

FIG. **9**(A) is a perspective view showing an example of the use of the construction member **10** shown in FIGS. **1**, **2** and **3**. FIG. **9**(B) is a side view showing the process of mounting the construction member on a wall.

In the use example, the construction member **10** is mounted on a wall as a formative material to enhance the formative effect of, for example, a pavilion of an exhibition. In this case, as shown in FIG. **9**(B), a space for accommodating the construction member **10** is provided at a desired position of a wall surface **100**. That is, an accommodating hole **102** having a configuration similar to that of the construction member **10** and greater than the construction member **10** is formed at a predetermined position of the wall surface **100**. Then, the back frame **16** of the construction member **10** is secured to the accommodating hole **102** by means of screws or the like. The reflective panel **22** is then removably installed on the back frame **16** by means of the engaging means **62** and **64**. Thereafter, the front frame **14** is mounted on the front surface side of the reflective pane **122**.

In the construction member **10** according to the present invention, because the glass tube **18** constituting the visually perceptible part in the form of a letter, a symbol, a design or a pattern is secured to the back surface of the plate **20**, the glass tube **18** is reliably supported on the back surface of the plate **20**. Therefore, unlike the conventional glass tube-supporting construction comprising the supporter **3** as shown in FIG. **10**, the glass tube **18** is resistant to external shocks or vibrations and damaged in a smaller degree in transportation or an installing operation. Further, the construction member **10** has no need of the supporter **3** for supporting the glass tube in comparison with conventional neon sign. Thus, the glass tube **18** can be easily handled.

Furthermore, because the glass tube **18** is illuminated by means for illuminating, the glass tube **18** is able to form a visually perceptible part in the form of a letter, a symbol or a pattern, or the like, with good decorativeness. In addition, the printed layer **48** is formed as another visually perceptible part on the front surface of the plate **20**. Thus, when the glass tube **18** is illuminated, the printed layer **48** is dark, whereas when the glass tube **18** is not illuminated, the printed layer **48** can be indicated clearly. Accordingly, the formative effect of the construction member **10** can be enhanced owing to the synergetic effect produced by the contrast between the illumination of the glass tube **18** and the display of the printed layer **48**. Moreover, an image of the glass tube **18** illuminated by the means for illuminating is reflected on the front surface of the reflective panel **22** provided inside the frame **12**. Consequently, with this kind of construction member a three-dimensional image, rich in the sense of depth, can be produced through overlapping of the visually perceptible part.

That is, in the construction member **10** according to the present invention, there is able to provide a novel construction member which is capable of supporting and protecting a visually perceptible part. Furthermore, a novel construction member as a new formative material with good decorativeness and excellent in producing visual effects is obtainable.

Further, in the construction member **10**, the reflective panel **22** can be removably installed on the back frame **16** by the receiving member **62** and the insertion members **64** both constituting the engaging means. Therefore, the construction member **10** can be easily installed, for example, in floors, walls, ceilings, and the like.

Furthermore, the construction members **10** according to the present invention may be used in combination for any desired pattern. In such case, it is also possible to turn the light in the glass tube **18** on and off by providing the switch for such construction member **10** with a controller, or the like, thus creating light-flowing effects, even changing the color of light and bringing about effective visual effects rich in variation.

Further, when the construction member **10** according to the present invention is properly water-proof treated, such construction member **10** may possibly be used as a bathtub lid or a bathtub flooring.

In the above embodiment, the plate **20** is made of borosilicate glass, tempered glass or the like. But in addition, the plate **20** may be made of synthetic resin such as polyacrylate (acrylic resin), polymethyl methacrylate, acrylonitrile-butadiene-styrene (ABS) or polycarbonate. Further, the plate **20** may be made of metal material such as aluminum or stainless steel or a woody material.

While the present invention has been particularly described and shown, it is to be understood that such description is used merely as an illustration and example rather than limitation, and the spirit and scope of the present invention are determined solely by the terms of the appended claims.

What is claimed is:

**1**. A construction member comprising:

a frame;

a plate having a front surface and a back surface and disposed in said frame;

a glass tube having a visually perceptible indicia and being filled with inert gas;

means for illuminating said glass tube; and

a reflective panel, for reflecting light transmitted from said glass tube, disposed in said frame at a spaced distance from said plate and said glass tube, wherein said glass tube is supported with said back surface of said plate by said glass tube being secured to said back surface of said plate.

**2**. The construction member according to claim **1**, further comprising a primed layer formed on said front surface of said plate and having another visually perceptible indicia.

**3**. The construction member according to claim **1**, further comprising a front frame disposed on a side of said front surface of said plate; and a back frame disposed on a side of said back surface of said plate and removably mounted to said reflective panel by means of engaging means.

**4**. The construction member according to claim **2**, further comprising a front frame disposed on a side of said front surface of said plate; and a back frame disposed on a side of said back surface of said plate and removably mounted to said reflective panel by means of engaging means.

**5**. The construction member according to claim **1**, wherein said plate is made of a glass material; and said glass tube is secured to said back surface of said plate by means of thermosetting resin.

**6**. The construction member according to claim **2**, wherein said plate is made of a glass material; and said glass tube is secured to said back surface of said plate by means of thermosetting resin.

**7**. The construction member according to claim **3**, wherein said plate is made of a glass material; and said glass tube is secured to said back surface of said plate by means of thermosetting resin.

**8**. The construction member according to claim **4**, wherein said plate is made of a glass material; and said glass tube is secured to said back surface of said plate by means of thermosetting resin.

**9**. The construction member according to claim **1**, wherein a protection layer consisting of thermosetting resin is formed on the entirety of said back surface of said plate in such a manner that said protection layer covers said glass tube.

**10**. The construction member according to claim **2**, wherein a protection layer consisting of thermosetting resin is formed on the entirety of said back surface of said plate in such a manner that said protection layer covers said glass tube.

**11**. The construction member according to claim **3**, wherein a protection layer consisting of thermosetting resin is formed on the entirety of said back surface of said plate in such a manner that said protection layer covers said glass tube.

**12**. The construction member according to claim **4**, wherein a protection layer consisting of thermosetting resin is formed on the entirety of said back surface of said plate in such a manner that said protection layer covers said glass tube.

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